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Therapeutic reactance in adolescents: the psychometrics of the Therapeutic Reactance Scale in adolescents

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Abstract

Background: The Therapeutic Reactance Scale (TRS) is a classic measure of psychological reactance, yet only two studies have evaluated its factorial structure. Both proposed different multidimensional structures based on exploratory analyses. Not only is the factorial structure of the TRS unclear, but the scale has yet to be validated in adolescents.
Objective: This study aimed to test the factorial structure of the TRS in adolescents.
Methods: The authors conducted exploratory and confirmatory factor analyses, and analyses of reliability and validity, with a sample of 1,344 adolescents.
Results: A four-factor model fits well to the data. Three of the four TRS dimensions (not susceptibility to influence, SI) were correlated with the Hong Psychological Reactance Scale (HPRS). These three dimensions were also correlated with novelty seeking, cooperativeness and persistence components of personality (Cloninger's psychobiological model of personality), while SI showed a different pattern.
Conclusions: Overall, this study demonstrates that the TRS is a suitable and potentially useful tool for measuring reactance in adolescents, but the authors propose that practitioners may wish to consider excluding items pertaining to the SI dimension.

Keywords: Reactance; Therapeutic Reactance Scale; psychometrics; adolescents

Introduction

According to psychological reactance theory, individuals perceive that they have freedom of behavior. When this freedom is perceived to be removed, or threatened with removal, individuals enter into a motivational state (with emotional and cognitive components) that has the potential to energize behavioral and cognitive efforts toward restoring this freedom (1,2). This motivational state is what Brehm originally defined as psychological reactance, and is often described as state reactance. Psychological reactance theory has now been widely adopted in the field of clinical psychology where it is typically conceptualized as a trait: an individual's propensity to experience situations as a threat to freedom and to experience state reactance (2,3). Given these two definitions, it is possible to conceptualize the experience of reactance as a continuum between state reactance and trait reactance (stable patterns of reactance limited to specific types of stimuli lie somewhere in the middle of this continuum).

Given the expansion of psychological reactance theory into clinical psychology, there are now a large number of instruments available for the assessment of trait reactance. These include the Questionnaire for the Measurement of Psychological reactance (QMPR) (4); the Mallon Reactance Scale (5); the HPRS (6); and, the Salzburger State Reactance Scale (7) amongst others. One of the most widely used instruments is the TRS.

The TRS, developed by Dowd et al. (8), was designed to provide an easy-to-use measure of client reactance potential (trait reactance) in a counseling context. An exploratory factor analysis (EFA) by Dowd et al. (8) revealed a two-factor, 28-item solution. These factors were labeled Verbal Reactance and Behavioral Reactance (see Table 1). Although it has now been over two decades since the TRS was developed by Dowd et al., we are aware of only one study that has since assessed the

psychometric properties of the TRS (9). More curiously, this investigation championed a factorial structure somewhat different to that offered by Dowd et al. (8). Using several statistical methods, Buboltz et al. (9) determined that a four-factor solution with 15 items was likely to offer the best fit to the data. These factors were labeled resentment of authority, susceptibility to influence, avoidance of conflict, and preservation of freedom (see Table 1 for distribution of scale items).

TABLE 1. Factors, and corresponding items, proposed by investigations of the factorial structure of the TRS

Dowd, Milne, & Wise (1991)	Behavioural reactance *1, 2, 4, 6, 8, 10, 12, 13, 16, 17, 19, 20, 21(r), 22, 23, 27, 28(r)*		Verbal reactance *3, 5, 7(r), 9, 11(r), 14(r), 15, 18(r), 24(r), 25(r), 26*	
Buboltz, Thomas, & Donnell (2002)	Resentment of authority *2, 3, 4, 10, 12*	Avoidance of conflict *21(r), 28(r)*	Susceptibility to influence *7(r), 11(r), 18(r), 25(r)*	Preservation of freedom *5, 15, 19, 26*
The present study	Resentment of authority *2, 3, 10*	Conflict seeking *4, 6, 8, 20, 22, 23*	Susceptibility to influence *11(r), 18(r), 25(r)*	Preservation of freedom *5, 9, 19, 26, 27*

Note. (r) = item is reverse scored

In addition to these direct investigations of the psychometric properties of the TRS, this instrument has received some indirect construct validation. Patients attempting to quit smoking with low scores on the TRS were found to reduce smoking more with high amounts support, while patients with high scores on the TRS reduced smoking more with a small amount of negatively toned advice (10). An unpublished doctoral thesis has shown that high TRS scores are associated with more no-shows to therapy and slower rate of improvement (11). The TRS has been shown to be moderately correlated with at least one other measure of reactance, the QMPR (12), and has been shown to be associated with similar personality profiles as the QMPRS (13) and to some extent the HPRS (14). Seemann et al. have also shown that reactance as measured by the TRS is associated with the five factors of the five-factor model of personality (15). Finally, Seibel and Dowd (16) have shown significant differences in TRS scores (total, behavioral, and verbal) across six different personality disorder profiles.

Despite the fact that the TRS is commonly used to assess trait reactance in clinical and research contexts, the number of studies that directly evaluate its psychometric properties is limited to two (8,9). Both studies offer different multidimensional solutions. Moreover, both of these studies used samples of undergraduates (young adults). It is therefore imperative to conduct further psychometric tests of this instrument to determine its validity, and specifically to test whether the TRS can be applied to other populations. We propose to do this in a sample of adolescents.

There are theoretical reasons to suspect differences in the mean levels of reactance between adults and adolescents. Adolescence is a developmental stage defined by neurobiological, social, and psychological changes (17). Given that a central task of adolescence is identity formation (18,19), this developmental stage is characterized by a progressive differentiation and complexification of emotional and cognitive dimensions (20), particularly higher-order socio-cognitive processes. A number of studies using different models of personality offer support for this claim. Longitudinal investigations following children into adolescence and utilizing the five-factor model have shown that children became less extraverted, more agreeable, and more conscientious (21). Other longitudinal studies using the psychobiological model of personality (22) have shown reductions of harm avoidance and persistence temperament, and increases in self-directedness and cooperativeness character, between the ages of 12 and 16 years (23). Cross-sectional studies in Portugal have also demonstrated that older adolescents are typically more self-directed and cooperative, and less novelty seeking than younger adolescents (24,25). These data suggest that adolescents have higher emotional reactivity and reduced regulatory capacities compared to adults and this can be translated into an increased tendency to desire independence and to engage in oppositional behaviors (26). In support of this, past studies have also shown that reactance decreases with age (27,28), is negatively linked to a sense of identity, and is derived from the earlier developmental stages (12).

It is necessary to further investigate trait reactance in adolescents, as well as its development over time, because potential additions to the current knowledge are likely to have important practical implications. Compliance with rules and expectations by

adolescents is associated with adaptive behavior, which in turn influences adolescents' subjective experiences and developmental trajectories. Moreover, the ability to measure trait reactance reliably in adolescents has direct implications for clinical practice because reactance has been shown to mediate compliance with behavioral tasks (29) and to influence the effectiveness of interventions (30). In support of this, research has shown that individuals with higher reactance are less likely to comply with antidepressant treatment (31) and generally have worse prognoses (32). Counselors and psychologists working in important contexts for adolescents (including school) are likely to benefit from being able to assess trait reactance reliably as it will enable them to tailor interventions to the needs of individuals and reduce noncompliance and oppositional behavior. Research indicates, for example, that less structured therapists were beneficial for individuals high in reactance (33).

Given the relevance of understanding the specificities of reactance across developmental phases, including adolescence, it is crucial to validate measurement instruments such as the TRS in multiple age groups. As such, the aims of the current study were to evaluate of the factorial structure of the TRS in adolescents, and to conduct the first assessment of this instruments construct validity using confirmatory factor analysis, and a detailed examination of scale reliability and validity.

Method

Participants

Our sample consisted of 1,344 adolescents, recruited from four schools in the north of Portugal. The vast majority of students (99%) were Portuguese by nationality, and all were fluent Portuguese speakers. A total of 47% of the sample were male and 53% were female. The sample was predominantly from the 9th, 10th, 11th, and 12th grades (85.8%), with a small proportion recruited from the 6th, 7th, and 8th grades. As a reflection of this, the sample was aged between 10 and 18 years old (M = 14.38; SD = 1.61). The education level of these students' parents was generally low. Approximately 60% of mothers and 67% of fathers had gone no further than 9th grade in their educations. For the sake of the analytical procedures described below, the sample was split into two random subsamples of similar sizes that we shall refer to as Sample 1 (n = 673) and Sample 2 (n = 671). The characteristics of these groups were approximately equal (see Table 2). Participants and participants' parents were informed of the purpose of the study as well as the voluntary, anonymous, and confidential nature of their participation prior to partaking. We obtained informed consent from all participants.

Measures

The Therapeutic Reactance Scale (TRS). We administered a version of the TRS (8) for which the original 28 items had been translated into Portuguese. Items were translated using forward translation procedures, independent back-translation to English, and a comparison of original and translated items by researchers who are fluent in both languages (34). Items are scored on a four-point Likert-type scale from 1 (totally disagree) to 4 (totally agree). Items 7, 11, 13, 14, 18, 31, 24, 25, and 28 are reverse coded. Past studies (8) have shown that the overall reliability of this scale is good (a = 0.84).

The Hong Psychological Reactance Scale (HPRS). The original HPRS consists of 14 items, but we adopted the 11-item factorial structure validated by Hong and Faedda (6). These items were grouped into four factors: reactance to compliance (four items), resisting influence from others (three items), reactance to advice and recommendations (two items), and emotional response toward restricted choice (three items). Reactance to compliance represents the tendency to resist obedience to rules or wishes of other people. Resisting influence from others represents the tendency to resist situations in which others try to control one's behavior. Reactance to advice and recommendations represents the tendency to resist situations where others give advice and suggestions. Finally, emotional response toward restricted choice refers to the tendency to resist situations when someone is unable to make decisions without someone interfering (35). Participants are asked to indicate to what extent they feel each item reflects their personal experience. Items are rated on a five-point Likert scale, ranging from 1 (disagree completely) to 5 (agree completely). This scale has no reversed items. Hong and Faedda (6) found a reliability of a = 0.77, for the total 11-item scale, but did not present reliabilities for the first order factors. Shen and Dillard (36), who assessed the psychometric properties of the 11-item HPRS, found reliabilities of between 0.45 and 0.71 for the four dimensions.

Junior Temperament and Character Inventory (JTCI). The Portuguese version of the JTCI comprises 127 items corresponding to the seven dimensions of the psychobiological model of temperament and character. This includes four temperament dimensions – novelty seeking, harm avoidance, reward dependence, persistence – and three character dimensions – self directedness, cooperativeness, and self-transcendence. All items

TABLE 2. Sample, and sub-sample characteristics

	Full sample (*N* = 1,344)		Sample 1 (n = 673)		Sample 2 (n = 671)	
	Valid (n)	*M* (SD)	Valid (n)	*M* (SD)	Valid (n)	*M* (SD)
Age	1,336	14.38 (1.61)	671	14.39 (1.63)	665	14.37 (1.60)
Number of Siblings	1,334	1.02 (0.87)	670	1.01 (0.85)	664	1.02 (0.89)
		n (%)		n (%)		n (%)
Gender	1,338		671		667	
Male		626 (46.6)		312 (46.5)		314 (47.1)
Female		712 (53.0)		359 (53.5)		353 (52.9)
School Year	1,344		673		671	
< 9		191 (14.2)		100 (14.8)		91 (13.6)
9		304 (22.6)		151 (22.4)		153 (22.8)
10		304 (22.6)		150 (22.3)		154 (23.0)
11		299 (22.4)		156 (23.2)		143 (21.3)
12		246 (18.3)		116 (17.2)		130 (19.4)
Nationality	1,340		672		668	
Portuguese		1,327 (99.0)		666 (99.1)		661 (99.0)
Brazilian		5 (< 1)		3 (< 1)		2 (< 1)
Spanish		1 (< 1)		1 (< 1)		0 (< 1)
French		4 (< 1)		1 (< 1)		3 (< 1)
Italian		2 (< 1)		1 (< 1)		1 (< 1)
Other		1 (< 1)		0 (< 1)		1 (< 1)
Mother's Education	1,330		666		664	
< 9th Grade		802 (60.3)		408 (61.3)		394 (59.3)
Secondary School		308 (23.2)		153 (23.0)		155 (23.3)
Degree		166 (12.5)		80 (12.0)		86 (13.0)
Post-graduate degree		55 (4.1)		26 (3.9)		29 (4.4)
Father's Education	1,277		642		635	
< 9th Grade		851 (66.6)		419 (65.3)		432 (68.0)
Secondary School		273 (21.4)		152 (23.7)		121 (19.1)
Degree		118 (9.2)		59 (9.2)		59 (9.3)
Post-graduate degree		35 (2.7)		12 (1.9)		23 (3.6)

TABLE 3. Factor loadings of the TRS items

		Factor loadings			
No	Item text	CS	PF	SI	RA
8	Nothing turns me on as much as a good argument	**0.74**			
6	I enjoy playing "devil's advocate" whenever I can	**0.51**			
23	I consider myself more competitive than cooperative	**0.49**			
4	I enjoy seeing someone else do something that neither of us is supposed to do	**0.48**			
20	It is important to me to be in a powerful position relative to others	**0.47**			
22	I enjoy showing up people who think they are right	**0.40**			
5	I have a strong desire to maintain my personal freedom		**0.76**		
26	I feel it is better to stand up for what I believe than to be silent		**0.57**		
19	I am relatively opinionated		**0.55**		
9	It would be better to have more freedom to do what I want on a job		**0.49**		
27	I am very stubborn and set in my ways		**0.42**		
25	I usually go along with other's advice (inv)			**0.69**	
18	I often follow the suggestions of others (inv)			**0.64**	
11	I am sometimes afraid to disagree with others (inv)			**0.40**	
2	I resent authority figures who try to tell me what to do				**0.56**
10	If I am told what to do, I often do the opposite				**0.44**
3	I find that I often have to question authority				**0.41**

Note. CS = Conflict seeking; PF = Preservation of freedom; SI = Susceptibility to influence; RA = Resentment of authority

are rated on a five-point Likert scale (completely false to completely true). Reliability for these dimensions has been shown to be between 0.57 and 0.82 (25).

Sociodemographic questionnaire. To obtain sociodemographic characteristics of the study sample we administered a questionnaire that recorded

participant age, gender, number of siblings, and parental education.

Procedures

Data collection. Questionnaires were administered and completed by students in their classrooms, and the entire process was supervised by a member of the research team and a schoolteacher. The order in which questionnaires were completed was counterbalanced to avoid order effects.

Statistical analysis. All analyses were conducted using R (37). Prior to analysis, all missing values were replaced with the series mean of their corresponding variable. Sampling adequacy was determined to be satisfactory using the KMO statistics prior to conducting EFA. The assumption of multivariate normality (a prerequisite for Confirmatory Factor Analysis) was tested using the Henze–Zirkler test and this indicated that our data deviated significantly from non-normality.

Exploratory Factor Analysis. Our first goal was to extract factors from the first randomly selected half of the dataset (Sample 1). Because the TRS items are scored on a Likert scale, we first calculated polychoric correlations. Because we expected the factors to be correlated, the exploratory analysis was conducted with a minimal residual method and oblique Oblimin rotation. The number of factors to extract was determined by an examination of a scree plot.

Confirmatory factor analysis. The confirmatory factor analysis procedure was conducted with a diagonally weighted least squares method. The first item in each subscale was constrained to a value of 1 in order to serve as a reference. Although the analyses were conducted using unstandardized values, we report standardized factor loadings for clarity. The fit of these models was assessed using a set of test statistics and heuristics: the Chi-square test (χ^2), and the χ^2/df ratio to account for sample size; the Tucker Lewis Index (TLI); the Comparative Fit Index (CFI); and the Root-Mean Square Error Approximation (RMSEA). The reference values considered were: $\chi^2/df \leq 5$; $CFI \geq 0.90$; $TLI \geq 0.90$; and $RMSEA < 0.10$ (38).

Internal consistency and construct validity. The reliability with which items measure their relative factors was assessed by calculating Cronbach's *a* based on polychoric matrices.

The construct validity of a measure corresponds to how much scores on this measure are associated with another construct/measure for which there is a theoretical justification for expecting an association. We assessed the association between the TRS and JTCI by calculating Spearman's correlations, *r*, between each of the subscales, and total scores. With large sample sizes, even small correlations are often found to be significant, $p < 0.05$, and so we interpreted the size of associations using the suggestions given by Cohen (39). We assessed the association between the TRS and another measure of trait reactance, the HPRS, using the same procedure as described above.

Results

Exploratory factor analysis

The following analyses were conducted using Sample 1. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy revealed an overall value of 0.77 and between 0.54 and 0.85 for individual variables. This suggests that the data were adequate for factor analysis. A scree plot indicated that four factors should be tested and subsequently the data were subjected to an EFA with an Oblimin rotation based on polychoric matrices. Factors derived from items with loadings ≥ 0.40 are shown in Table 3. The first of these factors included items 8, 6, 23, 4, 20, and 22 and was labeled Conflict Seeking (CS). The remaining three factors were congruent with the three factors labeled by Buboltz et al. (9). The second factor, preservation of freedom (PF) comprised items 5, 26, 19, 9, and 27. The third factor included items 25, 18, and 11 and corresponded to susceptibility to influence (SI). Finally, items 2, 10, and 3 were labeled as resentment of authority (RA).

Confirmatory factor analysis

The CFA was conducted with Sample 2. Because analyses were conducted with polychoric matrices, CFA was conducted using the Diagonal Weighted Least Squares method. An initial unidimensional model did not have good fit with the data.

The Chi-square test was found to be significant, χ^2 (119) = 1,324.15, $p < 0.001$, although this was unsurprising based on the large sample size. The χ^2/df ratio, which accounts for sample size, was 11.13, and therefore above the heuristic for acceptable fit. CFA (0.647), TLI (0.596), and RMSEA (0.123) were also indicative of poor fit.

A correlated four-factor model examining the four lower-order factors revealed by EFA had good fit with the data (Figure 1). The χ^2/df ratio was found to be 3.51, and therefore below the heuristic for acceptable fit. CFA (0.918), TLI (0.900), and RMSEA (0.061) were also indicative of acceptable fit. However, an inspection of item loadings revealed that most items did not load strongly on their respective factors (< 0.541). This was particularly true for the SI dimension (loading range: 0.099–0.263). Factor covariance was very weak between SI and CS (0.071), as well as with RA (0.061), and moderate with PF (0.342).

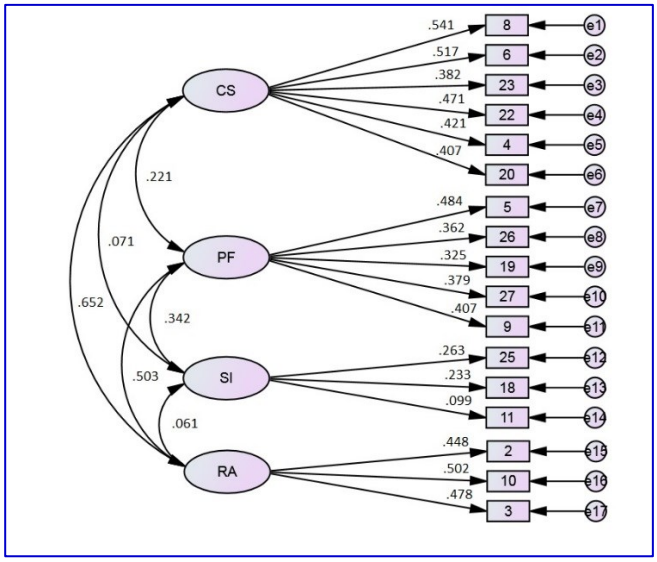

FIGURE 1. Correlated four-factor model of the TRS with factor loadings and factor covariances

TABLE 4. Spearman correlation coefficients for the TRS dimensions and the HPRS

	TRS dimensions			
HPRS dimensions	Conflict seeking	Resentment of authority	Preservation of freedom	Susceptibility to influence
Emotional response toward restricted choice	.22***	.23***	.24***	.03
Resistance to compliance	.28***	.24***	.14***	.00
Resisting influence from others	.17***	.16***	.23***	.07
Reactance toward advice & recommendations	.22***	.19***	.06	-.01

Note. *** $p < .001$

TABLE 5. Spearman's correlation coefficients between the subscales of the JTCI and the four factors identified by our analyses

	TRS dimensions			
Personality dimensions	Conflict seeking	Resentment of authority	Preservation of freedom	Susceptibility to influence
Novelty seeking	**.49*** **	**.35*** **	.27***	.02
Harm avoidance	-.05	.01	-.10	-.27***
Reward dependence	-.26***	-.10	.03	-.12
Persistence	**-.44*** **	-.21***	.04	.06
Self-directedness	-.25***	-.20***	.18***	.23***
Cooperativeness	**-.49*** **	-.20***	.07	-.05
Self-transcendence	.05	.14*	.24***	-.12

Note. P values were corrected for multiple tests. Values in bold are those where *r* represents moderate correlations (> |.30|)
*** $p < .001$, * $p < .05$

Dimension characteristics

The mean score was calculated for each of the four dimensions. The participants scored lowest for CS (M = 2.19, SD = 0.55), followed by RA (M = 2.29, SD = 0.57), SI (M = 2.59, SD = 0.55), and highest for PF (M = 3.15, SD = 0.47).

Internal consistency and validity

Values for ordinal α were observed to be, overall, acceptable, although SI was notably less reliable; CS = 0.72; PF = 0.69; SI= 0.57; and RA = 0.63.

To assess convergent validity, the scores obtained for the dimensions identified in this investigation were correlated with scores obtained from another measures of reactance; the HPRS. The notable finding from an examination of these coefficients, presented in Table 4, is that scores from the SI dimension did not correlate with any of the dimensions from the HPRS. With the exception of the PF dimension, which did not correlate with the reactance toward advice and recommendations dimension of the HPRS, all other dimensions had weak significant positive correlations with the HPRS dimensions.

Finally, we assessed the extent to which the dimensions of the TRS are associated with the temperament and character dimensions of psychobiological model of personality (see Table 5). Some similarities were seen in the patterns of associations across the four dimensions of the TRS. However, the SI dimension had some notable dissimilarities. Whereas CS, PF, and RA were positively correlated with novelty seeking temperament, SI was not. Conversely, SI showed significant negative correlations with harm avoidance temperament trait, but CS, PF, and RA did not seem to be correlated. CS and RA were shown to be negatively correlated with persistence temperament, but SI and PF were not. CS and RA were also both negatively correlated with cooperativeness character traits, and for CS these correlations were moderate in strength. SI and PF did not appear to be correlated with cooperativeness. Finally, CS and RA were negatively correlated with self-directedness, whereas PF and SI were positively associated with this character dimension.

Discussion

The main purpose of the present study was to provide some clarity as to the factorial structure of a widely used measure of trait reactance. The two past studies that have addressed the same issue championed different multidimensional structures of the TRS, the first a two-dimensional structure (8), and the second a four-dimensional structure (9). We identified a four-factor solution that was theoretically consistent with the latter study, although comprised of different items.

In addition to determining a factorial solution using EFA, the present study contributes to the current literature by being the first to use confirmatory techniques. Our results found that the four-dimensional model fit well to an independent subsample of participants to that used for EFA, although the SI dimension appeared to be conceptually distinct from the CS or RA dimensions (as demonstrated by weak factor correlations). This finding suggests that the clinical and research practice of calculating a total TRS score may be misplaced because it ignores the multidimensional nature of the instrument, wrongly assuming that the dimensions measure the same construct. In our analysis, the fact that a unidimensional model did not have adequate fit to the data corroborates this assertion.

Nevertheless, our study broadly confirms the factorial structure proposed by Buboltz et al. (9) and goes further by offering a measure of internal consistency for the four dimensions and tests of validity. The results of these tests each indicate that the SI dimension requires some further detailed examination. As a test of convergent validity, the mean scores for the TRS dimensions were correlated with scores obtained from a different measure of reactance – the HPRS. A scale has convergent validity if it correlates with a different scale that also measures the same construct. The SI dimension did not correlate significantly with any of the dimensions of the HPRS whereas CS, PF and RA did show significant positive correlations. This finding further strengthens the finding that this dimension may be conceptually distinct from trait reactance, but also validates the remaining three dimensions as components of the trait reactance construct (35).

We also calculated correlation coefficients between the four TRS dimensions and psychobiological personality dimensions. Past research has indicated that the trait reactance is associated with specific personality profiles. For example, reactance has been shown to be negatively associated with conformity, agreeableness, and conscientiousness (14), and positively with openness to experience (13). Based on these findings, and the correlations identified between the five-factor model of personality and the psychobiological model (40), we anticipated that reactance would be negatively associated with cooperativeness and persistence, and positively with self-transcendence, novelty seeking and reward dependence. The pattern of associations between TRS dimensions and psychobiological personality traits was broadly consistent with these predictions, although the SI dimension once again showed a unique pattern of associations that mostly diverged from the CS, RA, and PF dimensions. As an example of this, excluding SI, adolescents scoring high in reactance had higher novelty seeking (impulsivity, disorderliness, excitability, and anger proneness) and low persistence (easily frustrated and low ambition), a combination of traits that has been associated with a disengaged personality type (41), which is itself linked to difficulties in regulating behavior, lower functioning, and higher levels of psychopathology. This pattern of association with temperament dimensions was not evident for SI, which showed only a significant negative correlation with harm avoidance. Interestingly, high CS and RA were linked

to lower self-directedness, while high PF and SI were linked to higher self-directedness. One implication of all the above findings is that the SI dimension reflects a construct that is related, yet largely distinct, from that measured by CS, RA, and PF (i.e., trait reactance).

One possibility is that the SI dimension was extracted in EFA because of the reversed nature of the items. This would mean that this factor has no real meaning in terms of an underlying dimension of reactance. This proposal is somewhat supported by its poor reliability, weak covariance with other dimensions, poor factor loadings, and weak correlations with the HPRS. A simple solution to this problem for those wishing to use the TRS in the future might be to remove this dimension and its related items from the scale. Indeed, although we presented analysis with the TRS including the SI dimension, a further CFA with these items removed resulted in a better model fit; χ^2/df ratio (3.71), CFA (0.929), TLI (0.911), and RMSEA (0.064).

Study implications

This study adds to the available literature by indicating that the TRS, at least in the form presented, is a reliable and valid measure of a multidimensional trait reactance construct in Portuguese adolescents. There are theoretical reasons to suspect trait reactance may be higher in adolescents, and indeed this is generally supported by empirical research (28). Understanding reactance in adolescents is critical because compliance with rules and expectations is linked to adaptive behavior, which in turn influences students' subjective experiences and developmental trajectories. Our study thus offers a quick-to-use tool for researchers to use when investigating reactance in this critical developmental period.

The availability of a valid measure of trait reactance in adolescents is also likely to have some important implications for clinical practice. The availability of a quick-to-use and validated tool for assessing trait reactance in adolescents will be beneficial for counselors and psychologists working in different contexts (including school and therapeutic contexts) to identify individuals at risk of non-compliance. This is crucial given that prognoses for reactant individuals are often poorer than for non-reactant individuals due to their tendency not to adhere to treatment/therapy. As such, the identification of at risk individuals should encourage practitioners to tailor their interventions to each client.

Limitations

Our study had several limitations. First, the sample was cross-sectional, meaning that we were unable to conduct an assessment of test-retest reliability. Second, it is possible that our study was limited by the use of a convenience sample, despite its large size. Research has indicated that it is often problematic to generalize results across different samples (42). Finally, it is important to acknowledge that the reliability of the SI dimension was less than acceptable, meaning that special care should be taken when interpreting the observed associations with the HPRS and personality dimensions.

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Conflict of interests

All authors report having no conflict of interests

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